# Supplemental Material

# Vehicular Traffic-Related Polycyclic Aromatic Hydrocarbon Exposure and Breast Cancer Incidence: The Long Island Breast Cancer Study Project (LIBCSP)
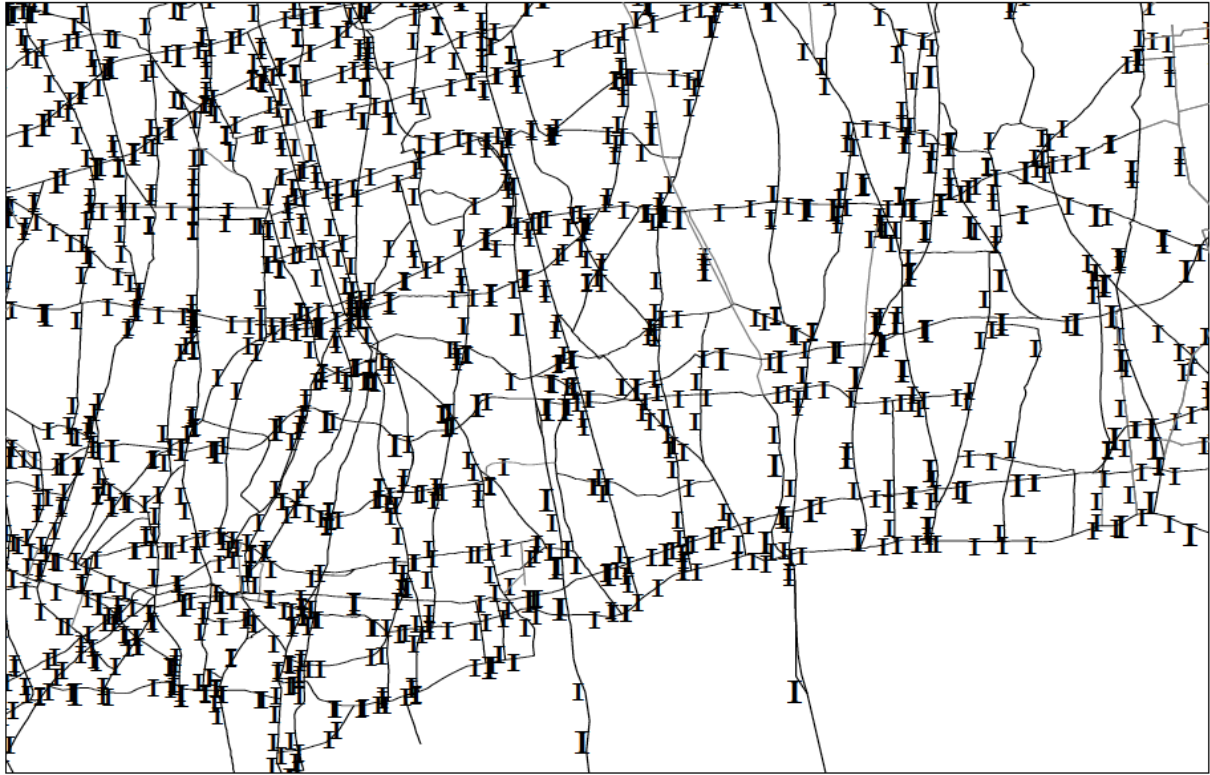
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**Figure S1.** Traffic-count measurement density in a 25-km wide section of the study area. Each symbol represents a measurement location. Long Island Breast Cancer Study Project, 1996-1997.

**Table S1**. Case-control sample sizes following participant recruitment procedures, participation rates, and exposure data availability[a], Long Island Breast Cancer Study Project, 1996-1997.

| Study participant status | Cases (n) | | Controls (n) | |
|---|---|---|---|---|
| Sampled | 2,271 | | 2,714 | |
| Eligible[b] | 1,837 | | 2,481 | |
| Refused | | 217 | | 530 |
| Deceased | | 16 | | 25 |
| Out of area/untrackeable | | 25 | | 193 |
| Too ill or cognitively impaired | | 60 | | 168 |
| Partially completed questionnaire | | 10 | | 7 |
| Other | | 1 | | 2 |
| Completed study questionnaire | 1,508 | | 1,556 | |
| Complete traffic PAH exposure information | | | | |
| 1995 (CCA) | 1,274 | | 1,334 | |
| 1980-1995 (20 % MI)[c] | 961-973 | | 1004-1016 | |
| 1980-1995 (CCA) | 846 | | 873 | |
| 1960-1990 (20 % MI)[c] | 520-551 | | 566-597 | |
| 1960-1990 (CCA) | 286 | | 273 | |

CCA: complete case analysis; MI: multiple imputation; PAH: polycyclic aromatic hydrocarbon

a) Adapted from Gammon et al. 2002.

b) Eligibility was determined by whether a woman was identified as having breast cancer on a hospital pathology report, whether it could be confirmed that she had a first primary breast cancer (through a medical record and/or her physician), and whether her physician consented for the LIBCSP to contact her.

c) Combined over m=30 imputations. Sample size varies across imputed data sets.

**Table S2.** Correlations between selected residential vehicular traffic PAH exposure variables, Long Island Breast Cancer Study Project, 1996-1997.

| Traffic PAH Exposure Years | 1995 | 1980-1995 CCA | 1960-1995 CCA | 1960-1990 CCA | 1960-1990 20% MI[a] |
|---|---|---|---|---|---|
| **Spearman correlations[b]** | | | | | |
| 1995 | 1 | 0.95 | 0.85 | 0.84 | 0.76 |
| 1980-1995 CCA | | 1 | 0.92 | 0.92 | 0.88 |
| 1960-1995 CCA | | | 1 | 1.00 | 1.00 |
| 1960-1990, CCA | | | | 1 | 1.00 |
| 1960-1990, $\leq$20% MI[a] | | | | | 1 |
| **Pearson correlations[b]** | | | | | |
| 1995 | 1 | 0.91 | 0.59 | 0.58 | 0.41 |
| 1980-1995 CCA | | 1 | 0.71 | 0.69 | 0.70 |
| 1960-1995 CCA | | | 1 | 1.00 | 1.00 |
| 1960-1990 CCA | | | | 1 | 1.00 |
| 1960-1990 $\leq$20% MI[a] | | | | | 1 |

CCA: complete case analysis; MI: multiple imputation; PAH: polycyclic aromatic hydrocarbon

a) Combined over m=30 imputations; sample size varies across the imputed data sets.

b) Pearson correlation is more sensitive to outliers than Spearman correlation. Outlier exposure estimates in our study reflect truly increased exposures for these individuals due to proximity to heavily trafficked intersections. Thus, Pearson coefficients may be informative when considering women with the highest exposure levels, but Spearman coefficients are probably more representative of the overall ranking for most participants.